

CLAIMS

1. A fastener system for fastening a vacuum pump (1) to a wall (2) of a stationary structure (3), in which a coaxial annular flange (14) is provided on the vacuum pump body (4) around the suction orifice (6), tapped holes (15) are provided in the wall (2) of the stationary structure (3), through holes (16) are provided in the coaxial annular flange (14), and screws (17) having heads (18) are fitted so that their shanks (19) pass through the through holes (16) and are screwed into the associated tapped holes (15) in order to secure the vacuum pump (1) to the stationary structure (3) while pressing the flange (14) against the wall (2) of the stationary structure (3), the system being characterized in that each through hole (16) comprises a distal segment (16a) that is circularly cylindrical followed by an enlarged proximal segment (16b) that is circularly cylindrical about the same axis and that is adjacent to the wall (2) of the stationary structure, making it possible, in the event of shear forces (20, 21) being applied in any lateral direction in the connection zone between the vacuum pump (1) and the stationary structure (3), for the shank (19) of the screw to bend and for the through hole (16) to be offset laterally (D) correspondingly relative to the associated tapped hole (15).

2. A system according to claim 1, characterized in that the proximal segment (16b) of the through hole (16) is of a shape such that during bending of the screw shank (19) until it comes into abutment against the side wall (16c) of the proximal segment (16b) of the through hole (16), the lateral offset (D) that is possible between the through hole (16) and the associated tapped hole (16) is greater than the radius of the screw shank (19); and

the proximal segment (16b) of the through hole (16) is of a length (Lb) greater than the length (La) of the distal segment (16a) of the through hole (16).

5 3. A system according to claim 1 or claim 2,
characterized in that the proximal segment (16b) of the
through hole (16) includes a circularly cylindrical
proximal portion (116b) that is connected to the distal
segment (16a) of the through hole (16) by a circularly
10 frustoconical distal portion (216b).

4. A system according to claim 3, characterized in that
the frustoconical distal portion (216b) has a cone half-
angle equal to about 60°.

15 5. A system according to any one of claims 1 to 4,
characterized in that the screw shank (19) comprises,
adjacent to the head (18), a smooth shank segment (19a)
of diameter (Dt) that is considerably smaller than the
20 diameter (Da) of the distal segment (16a) of the screw
hole (16), and that is followed to a free end (19c) by a
threaded segment (19b) shaped to screw into the
associated tapped hole (15) in the wall (2).

25 6. A system according to claim 5, characterized in that
the diameter (Dt) of the smooth shank segment (19a) is
less than or equal to 80% of the diameter (Da) of the
distal segment (16a) of the through hole (16).

30 7. A system according to claim 5 or claim 6,
characterized in that the proximal segment (16b) of the
through hole (16) is of a length (Lb) greater than or
equal to 1.5 times the length (La) of the distal segment
(16a) of the through hole (16).

35 8. A system according to any one of claims 1 to 7,
characterized in that a washer (22) is interposed between

the head (18) of the screw (17) and the adjacent outside face (14a) of the flange (14).

9. A system according to any one of claims 1 to 8,
5 characterized in that an elastomer type damper material is inserted in the space between the shank (19) of the screw and the corresponding through hole (16) of the flange (14).
- 10 10. A vacuum pump (1) provided with a fastener flange (14) having through holes (16) in accordance with the system of claims 1 to 9.